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(71) Applicant: Sony Corp

(72) Inventor: Toyoda Takashi

(54) Name of the invention:

Broadcast Receiver

(57) Abstract:

Problem to be solved:

To allow the user to always view newest broadcast contents by surely storing the newest information as to a priority program even when plural programs are reserved and registered.

Solution:

The receiver is provided with a memory 7a storing a broadcast program content received by a TV tuner 2 and a

memory 7c storing designation information of a prescribed broadcast program and periodic reception time information. A controller 6 receives a broadcast program represented by corresponding designation information based on the reception time information stored in the memory 7c and stores the program to the memory 7a.

[Claims]

[Claim 1]

A receiving means to receive broadcast, and a storage means to store the received contents of a program, a priority reservation storage means by which the predetermined designation information and its periodic reception time information on a program are storable, the broadcast receiving set characterized by having a control means controllable to receive the program shown in corresponding designation information based on the reception time information stored by the above mentioned priority reservation storage means, and to store by the above mentioned storage means.

[Claim 2]

The broadcast receiving set according to claim 1 with which the input means that can input the designation input and the periodic reception time information that should be stored for the above mentioned priority reservation storage means.

[Claim 3]

The broadcast receiving set according to claim 1 characterized by detecting the period of the updating time amount of a program shown using the designation

information stored by the above mentioned priority reservation storage means, and setting up and storing periodic reception time information based on the detection result.

[Detailed description of the invention]

[0001] [Field of the invention]

This invention relates to a suitable broadcast receiving set, in case it realizes as for example, a teletext receiving set etc.

[0002] [Description of the prior art]

The broadcasting format that superimposes and transmits the alphabetic data used as a program independent in the video signal of television broadcasting is known as a teletext. As for this teletext, one program is constituted of the alphabetic data of page, and a teletext receiving set generates the video signal that extracts alphabetic data from the video signal of the received television broadcasting, and serves as a teletext screen for every page, and displays on a monitoring device.

[0003]

In this teletext, page sending out spacing of a program, i.e., spacing at which a receiving set can receive the information on each page, is about 20 seconds. Thus, when a certain program consists of 10 pages, reception of the program will take about 200 seconds. For this reason, when a user is going to receive and display the information on that selected program after choosing a program in case it views a teletext, for a user, it will be

considerably kept waiting from program selection actuation to an actual display output in many cases.

[0004]

For this reason, the function called reservation registration is conventionally prepared in the teletext receiving set. If this chooses the program that a user wants to watch preliminary and reservation registration is carried out, according to reception of the program, as for the receiving set, the contents of a program will be stored in memory. And when the program is chosen for viewing and listening with an actual user, it is the function that enables it to show a monitor table immediately in reading the contents of a program from memory.

[0005]

For example, the case where a program is a weather report is mentioned as an example. This program presupposes that its contents will be updated 3 times on day and that it consists of about 10 pages. If the user does reservation registration of the program of this weather report, the receiving set memorizes those contents of a program for 10 pages in memory, whenever the program of the weather report by which repeat broadcast is carried out is received. By this, even if the contents are updated, the newest contents of a program will always be held as the weather report at memory. And when a weather report program is chosen for viewing and listening by a user, the contents of a program currently held at memory are displayed immediately. For example, even if it is the case where the user wants to see the 5th page contents, it can display immediately by pulling it out from memory.

[0006] [Problems to be solved by the invention]

By the way, a teletext is a repeated program broadcast, while information is updated by predetermined time amount. For example, as for road traffic information an the like, in the predetermined time zone in one day per hour 0 minute, information that is updated in 30 minutes per hour 10 minutes, the newest the information is repeatedly transmitted from around 40 minutes. Therefore, when reservation registration of the program of road traffic information is being carried out, the contents of a program received around per hour 10 minutes and will be stored as just updated contents in 40 minutes. However, for example, when user reserve also programs such as other weather forecasts and stock information, it does not necessarily come out to always carry out memory of the newest contents of a program of road traffic information for reception of these programs. In other words, the program is unreceivable whenever it sees about one program that exists when reservation registration of two or more programs is being carried out, there is a problem that a user cannot always acquire the newest information from a teletext.

[0007] [Means for solving the problem]

A receiving means have been made in order that this invention might solve such a problem, and to receive broadcast, a storage means to store the received contents of a program, and a priority reservation storage means by which the designation information and its periodic reception time information on a predetermined program are storable. It has a control means controllable to receive

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the program shown in corresponding designation information based on the reception time information stored by the mentioned above priority reservation storage means, and to store for the mentioned above storage means, and a broadcast receiving set is constituted.

[0008]

According to this invention, a channel, a channel number, and the periodic reception time information used as the timing immediately after updating can be set up as a priority reservation program about a certain program. Thus, by registering the program to which a user always asks for the newest contents as a priority reservation program, the newest information can be certainly acquired about the program.

[0009] [Embodiment of the invention]

The teletext receiving set as one embodiment of this invention is explained below. Figure 1 is the block diagram of a teletext receiving set. The video signal that tunes in the television broadcasting electric wave received with the antenna 1 in the TV tuner 2, gets over, and is broadcast by the channel is outputted.

[0010]

The video signal outputted from this TV tuner 2 is supplied to T terminal of a switch 3. The output of a switch 3 is supplied to a monitor device from a terminal 4. So, when the switch 3 is connected to T terminal, the video signal as usual television broadcasting will be supplied to a monitor device, and television broadcasting will be displayed. Also connecting the topology of this

teletext receiving set and a monitor device (for example, television receiver) by various idea, and connecting a video signal by RF signal or a composite video signal structure and a Y/C video signal structure, RGB code structure, etc. is considered further. Although it becomes that from which the configuration of the output circuit system of the preceding paragraph of a terminal 4 differs by the difference among such signal aspects, a detailed explanation is omitted. Also this teletext receiving set can be built in a television receiver.

[0011]

The sign extract section 5 extracts the data as a teletext on which predetermined lie of the perpendicular blanking period in the video signal to which it received / restored is overlapped. The extracted data are supplied to a controller 6. The controller 6 is constituted by the microcomputer as a control section. And actuation of each part will be controlled by the control signal SG.

[0012]

A controller 6 can supply the extracted teletext data to the screen composition section 8 as it is, and can make the video signal as a teletext program compound. Also, a controller 6 makes program memory 7a once memorize the extracted teletext data, when a user views it, it can be read, it can be supplied to the screen composition section 8, and can also make the video signal as a teletext program compound. The output of the screen composition section 8 is supplied to M terminal of a switch 3. A controller 6 makes a switch 3 connected to M terminal in the case of teletext viewing and the image as a teletext

compounded by this in the screen composition section 8 in the monitoring device is outputted.

[0013]

The actuation key for a user to choose a teletext program and the actuation key for performing reservation registration are prepared in the control unit 9. For example, the front panel of this teletext receiving set is formed like on Figure 4, and the ten key 21 of "0"- "9" and the "#" key 22 for selection of a program number, the reservation mode key 23 and the reservation set key 24, and channel up / down key 25 are prepared. Also, the priority preprogrammed key 26 that makes the specified program give priority to and store is formed, and it can make it possible to always hold the newest contents of that program as priority reservation in this invention by carrying out reservation registration of a program and the periodic time of day using this priority preprogrammed key 26, and a ten key 21 and "#" key 22. Also, although not shown, the remote controller to a teletext receiving set is prepared, and actuation of a channel, selection of a program number, etc. can also be performed using the remote controller.

[0014]

About program selection, a user performs actuation that chooses a certain broadcasting station channel by actuation of channel up / down key 25 etc., and chooses a program number further. The "0" "#" key 22 is used for selection of a program number with the ten key 21 of − "9". For example, if a user operates it with "1", "2", "3"

and "#", it will mean that the program number "123#" was specified.

[0015]

Also, a user can perform actuation for reservation registration from a control unit 9. For example, when it is operated with a channel "1", a program number "1", "5", "6" and "#" and the reservation set key 24 is further operated after the user operated the reservation mode key 23. A controller 6 recognizes it as reservation register operation of the program of the program number "156#" of one channel having been carried out, and is stored to reservation registration memory 7b by using as reservation registration data "channel 1/program number 156#".

[0016]

Also, the time of delivery per hour of the program that operated with a channel "1", a program number "1", "5", "6", and "#", and was further reserved as it described above after operating the priority preprogrammed key 26 first when performing priority reservation. About time of delivery, a user should just input with reference to a program guide etc. this program "channel 1/program number 156#", for example, it stores to priority reservation registration memory 7c by using as priority reservation data the data of carrying out memory. Also, a certain convenience sets up the time amount of priority reservation registration a little later than time of delivery, for example, and it is for receiving the data before updating and storing. In other words, it is for receiving

certainly the program that carried out priority reservation registration.

[0017]

The usual reservation registration data set up according to actuation of a user are stored by reservation registration memory 7b. For example, the channel and program number of various programs are stored as reservation registration data like Figure 2. And a controller 6 makes program memory 7a memorize the contents of a program extracted in the sign extract section 5 about the program registered into reservation registration memory 7b, whenever the program is received.

[0018]

The registration data of priority reservation with which reservation registration of the priority reservation registration memory 7c was carried out by the priority preprogrammed key 26 are stored. And the reservation time of delivery (periodic reception time information) as the channel of a program, a program number, and a priority program per hour is stored as shown, for example in Figure 5.

[0019]

Anyway, if it is data of a "minute", it will become the periodic reception time for every per hour, and if it is data of "time", it will become the periodic reception time for every day. Also, what is necessary is to carry out field division in the same memory section in practice, and for a usual reservation program and a usual priority reservation program to form a discernment flag etc., and just to

identify in this case, on explanation, that reservation registration memory 7b and priority reservation registration memory 7c should just be set up, although reservation registration memory 7b and priority reservation registration memory 7c are divided and shown.

[0020]

As program memory 7a, storage capacity is set up so that comparatively a lot of contents of a teletext, such as 300 pages, can be stored, for example. And when actuation of a user that wants to watch the program and specifies a channel and a program number as mentioned above by holding the program by which reservation registration and priority reservation registration were carried out to program memory 7a is performed, a controller 6 can read the contents of a program from program memory 7a immediately, and can make the image of the program output on a monitor device. For example, program memory 7a is made to store the contents of a program with a channel number and a program number according to a certain reception of a program by which reservation registration was carried out like Figure 3. Also, the amount of data as contents of a program is based on whether the program consists of images for what page, and serves as different data size for every program.

[0021]

The clock section 10 has counted for example, the date time second as current time information, and it is constituted so that the current time information can be supplied to a controller 6. The controller 6 is detecting the

hour entry from the clock section 10, and when it becomes the time amount of the priority reservation set as priority reservation registration memory 7c, it performs control that stores the program by which priority reservation was carried out.

[0022]

In addition, when a user performs actuation of specifying the program by which reservation registration is not carried out, a controller 6 makes the channel receive to the TV tuner 2, and makes the sign extract section 5 perform extract actuation of the alphabetic data as the program according to a program number. And the screen composition section 8 is made to generate the screen as a program from the extracted alphabetic data, and it is made to display on a monitoring device.

[0023]

The actuation of the receive mode of the reservation registration realized in such a teletext receiving set and priority reservation registration is explained below. Figure 6 shows the receiving situation of reservation registration and priority reservation registration. "channel 1 / program number 001#" here shown, for example in Figure 5 priority reservation registration is carried and it may receive, other programs show further the case where usual reservation registration is carried out, and time amount progress is shown in the direction of an axis of ordinate.

[0024]

For example, reservation time amount of other usual programs by which reservation registration is carried out is considered as 14:00 time, and when the amount of information of the program is still larger, storage of the information will take most time amount. In this case, it laps with the updating time amount of the program of "channel 1 / program number 001#", and if the midst that is recording the program, for example, other programs, by carrying out priority reservation registration also becomes that priority reservation time amount, it receives and is trying to give priority to a priority reservation program, and to store, although it might not be storable.

[0025]

In other words, as shown in Figure 6 when receiving other programs, priority reservation was set up every time and the reception of other programs is stopped temporarily, and it changes to reception of a priority reservation program. And when reception and storage of a priority reservation program are completed, it changes to other usual reception and storage actuation of a priority reservation program again. Since the program that carried out priority reservation registration by repeating such reception actuation per hour is certainly receivable immediately after updating, a user can always see the newest information. Also, since the approach of priority reservation registration can also be managed with the figure input of part units, such as "12" and "42", in addition to a setup of a channel and a program.

[0026]

Next, the function that sets up the time of delivery of a priority reservation program automatically is explained. In the case of the teletext, a flag called an update flag is set up in the header of the data of the contents of a program transmitted, and this is decided as data that reverse "1" and "0", in case a broadcasting station side updates the contents of a program. By detecting spacing that this update flag reverses, the method of rewriting the contents of a program that set up the period by which the contents of a program are updated and were stored by memory also becomes possible.

[0027]

First, it explains that processing flows that detects the updating period of a teletext according to the flow chart shown in Figure 7. As described above, when reservation registration of the priority reservation program is carried out by operating priority preprogrammed-key 26 (S001), it will be distinguished whether it received until it changed to the state waiting for receiving in this condition and received the program that carried out priority reservation (S002). And if a priority reservation program is received, the contents of a program will be stored to program memory 7a, and the reception time and an update flag will be stored to priority reservation memory 7c (S003).

And although it will be distinguished whether an update flag is the same as that of what was stored last time (S004), since the update flag is not stored yet, the first time returns to step S002 as it is, and will be in the state

waiting for receiving. And it will progress to S004 again with a predetermined period.

[0028]

Moreover, when the update flag is updated, the updating period of the program that carried out priority reservation registration from current time amount and the time amount received last time is computed (S005). And the updating period computed here is stored to priority reservation registration memory 7c as a receiving period of a priority reservation program.

[0029]

The outline of the flow chart represented in the Figure 7 is explained according to the chart of the reception time and an update flag represented in Figure 8. Suppose that the reception time in step S003 was "1:00". And since the update flag is not stored yet, the first time returns to step S003 as it is. As detection spacing at this time is represented in Figure 8, when being carried out to every 10 minutes, it will progress to step S004 again "1:10". Since an update flag is "1", if it progresses to "1:20" through steps S002 - S004 at step S004 further, since the update flag is updated by "0" here, when it has passed also at the "1:10" time since "1:00" for 20 minutes, it is considered that the contents of a program were updated.

[0030]

Also, by detecting an update flag similarly, for example about "1:20" − "2:00", when 20 minutes pass, suppose that the program was updated. And it can judge now that three updating was performed from the first time

reception time in 1 hour of "1:00", "1:20" and "1:40". Thus, by detecting the updating period of an update flag, it is detectable whether a priority reservation program is alike and is updated per hour. So, if a controller 6 performs such actuation and periodic time information is detected, by storing it to priority reservation registration memory 7c, it becomes unnecessary for a user to input periodic reception time information in the case of priority reservation, and it can simplify actuation.

[0031] [Effect of the invention]

As mentioned above, if especially the broadcast receiving set of this invention becomes time amount predetermined per hour about the program, priority is given, and it receives and enables it to be able to register the program for which a user asks as a priority reservation program that specified reservation time amount, and to carry out memory, as explained. By this, even when reservation registration of two or more programs is being carried out, that stores the newest information certainly about a priority program can be made, and a user can always view and listen to the newest contents of broadcast. Also, about a priority program, periodic reception time information is set up and it can reserve by easy actuation, such as inputting per part for example. Also, reservation actuation of a user will become still easier by distinguishing modification time and setting up periodic reception time information automatically.

[Brief description of the figures]

[Figure 1] is the block diagram of the teletext receiving set of the embodiment of this invention.

[Figure 2] is the explanatory view of the data in the reservation registration memory of the teletext receiving set of the embodiment.

[Figure 3] is an explanatory view in the program memory of the teletext receiving set of the embodiment.

[Figure 4] shows the control unit of the teletext receiving set of the embodiment.

[Figure 5] is the explanatory view of the data in the priority reservation memory of the teletext receiving set of the embodiment.

[Figure 6] explains reception of the usual reservation program and a priority reservation program.

[Figure 7] shows the flow chart of processing in the case of carrying out study registration of the priority reservation program.

[Figure 8] explains the outline of the flow chart shown in Figure 7.

[Description of notations]

2 TV tuner

3 Switch

5 Sign Extract Section

6 Controller

7a Program memory

7b Reservation registration memory

7c Priority reservation memory

9 Control Unit

10 Clock

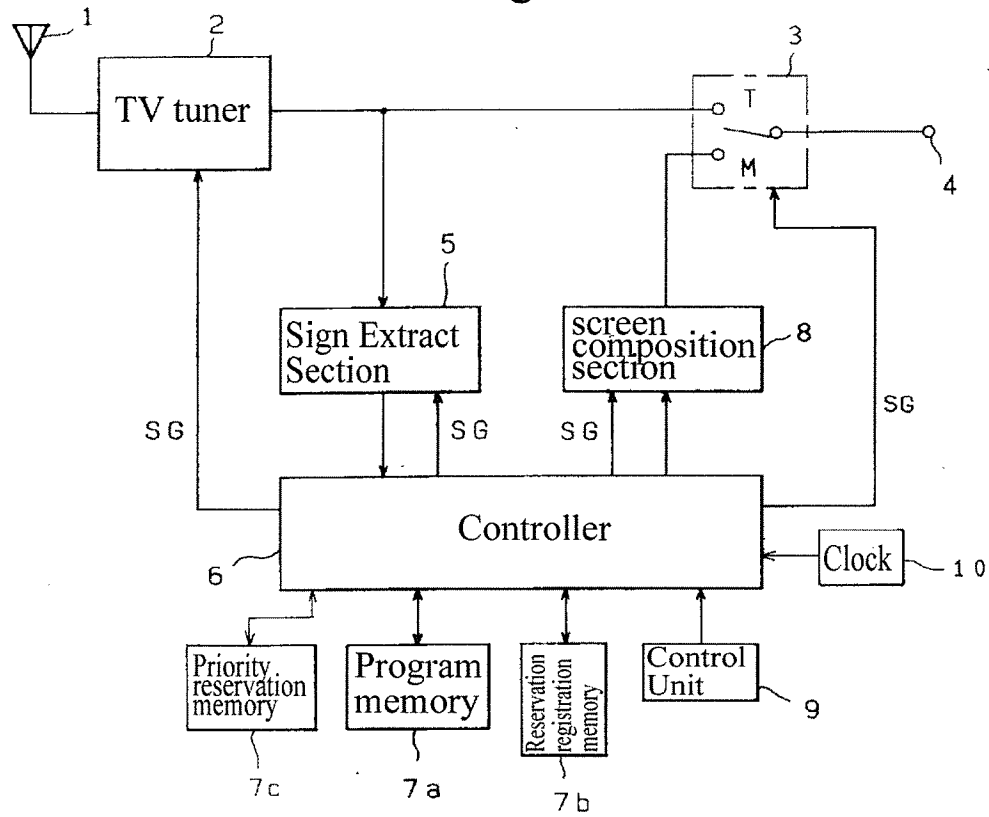26 Priority Preprogrammed Key

Fig. 1

Components: Antenna (1), TV tuner (2), Sign Extract Section (5), screen composition section (8), Controller (6), Clock (10), Priority reservation memory (7c), Program memory (7a), Reservation registration memory (7b), Control Unit (9), switch (3), (4)

Labels: T, M, SG

Fig. 2

reservation registration data

c h	program number
1	003#
8	104#
10	303#
4	45#
6	010#

Fig. 3

c h	program number	
1	003#	Program contents
10	303#	Program contents
4	45#	Program contents

Fig. 5

Channel	program number	program time		
1ch	001#	12	42	
4ch	42#	18		
8ch	125#	5	25	45

Fig. 4
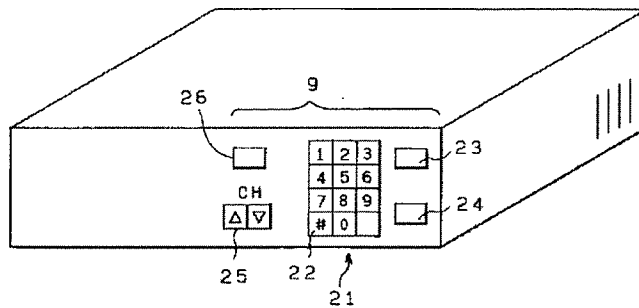
Fig. 6
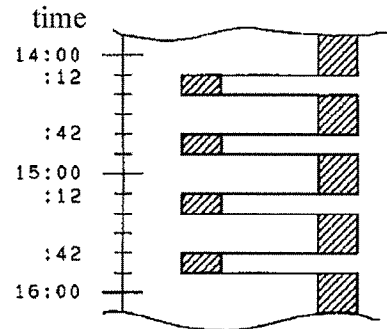
Fig. 7
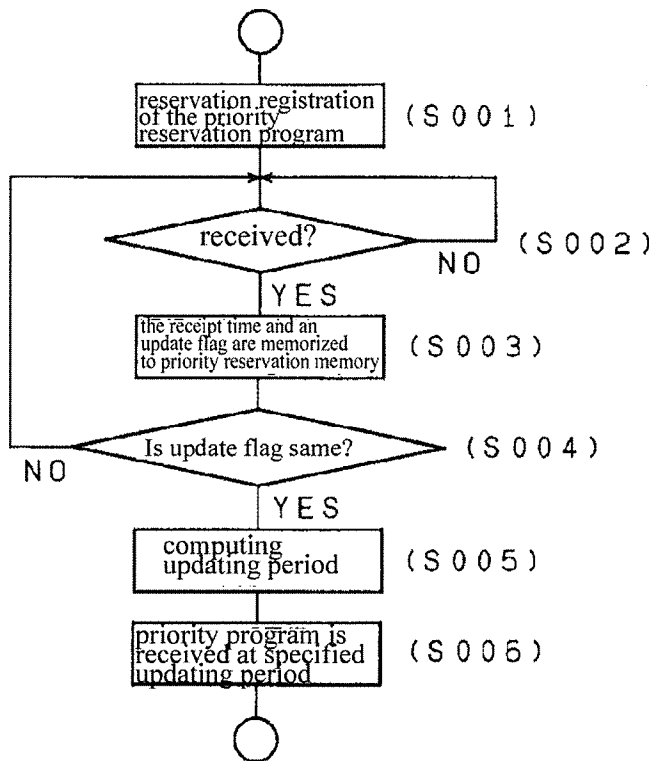
Fig. 8

receipt time	update flag
1:00	1
1:10	1
1:20	0
1:30	0
1:40	1
1:50	1
2:00	0